Malheur National Wildlife Refuge
Burns, Oregon

Narrative Report for Period January 1 to April 30, 1954

Roster of Regular Personnel

John C. Scharff	Superintendent
Ray C. Erickson	Wildlife Management Biologist
Marselle Leake	Construction & Maintenance Supervisor (General)
Noel L. Cagle	Dragline Operator, Uncl.
Frank A. Sanderson	Automotive Mechanic - Inspector
Louis O. Ash	Oiler, Uncl.
Alfred S. Ludi	Refuge Maintenance Man (Carpenter)
Albert Olofson	Refuge Maintenance Man (General)
Eugene P. Heath, Jr.	Clerk (Typing)
Russell J. Wilson	Refuge Maintenance Man (General)
Judd A. Wise	Refuge Maintenance Man (General)
John Porter	Refuge Maintenance Man (General)

Temporary Personnel

Leonard N. Austin	Laborer, Maintenance
Martin L. Auten	Laborer, Maintenance
Robert M. Bailey	Tractor Operator, 50 H.P. & Over, Maintenance
Walter F. Davis	Carpenter, Maintenance
Henry C. Fitchett, Jr.	Laborer, Maintenance
Travis O. McCool	Laborer, Maintenance
Kenneth R. Meservey	Trapping Inspector
William J. Mullenburg	Tractor Operator, 50 H.P. & Over, Maintenance
Elias D. Ramirez	Carpenter, Construction
Emmett M. Riddle	Carpenter, Construction
Vernon C. Walker	Laborer, Maintenance

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Malheur National Wildlife Refuge
First Period Narrative Report
January 1 to April 30, 1954

I GENERAL

A. Weather Conditions.

The following weather information was recorded at the official weather station at the refuge headquarters during the four month's report period:

Month	Precipitation	Max. Temp.	Min. Temp.
January	0.54	51	1
February	0.23	60	19
March	1.09	66	10
April	0.30	78	19
Totals:	2.16	Extremes: 78	1

Precipitation records for the P-Ranch, Diamond, and Double-O stations during the period are as follows:

Month	P-Ranch	Diamond	Double-O
January	1.30	0.87	0.81
February	0.63	0.22	0.63
March	2.04	1.48	0.87
April	0.51	0.41	0.30
Totals:	4.68	2.98	2.41

Precipitation for the period was not far from normal but the major part fell a little early for the most good to plant growth and for irrigation purposes considering the temperatures. April generally was a backward growing month with better conditions prevailing during March which resulted in serious reverses to plant growth during the latter part of the period when temperatures reached a low sufficient to damage tender growth.

B. Water Conditions.

The surface elevation of Malheur Lake as recorded near the mouth of the Blitzen River only changed about 0.20 of a foot during the period. The flow into the Lake appeared above normal but little rise was reflected in the surface elevation and as a result of unfavorable conditions during the month of April very little water reached the lake area. At no time was there much ice on any of the waters of the refuge and the streams remained open most of the time. There was very little frost in the ground and the ground water conditions seemed much better than a year ago. This condition was reflected in the Stream flows, as many of the short creeks ran water this spring that were not wet during the same period a year ago.

The snow pack on the Silvies River was considerably below average and the forecast for this stream was insufficient water for the irrigation of Harney Valley. However, this stream held up remarkably well during April and was running a fair head at the close of the period. Silver Creek ran about average during the months of March and April and furnished enough water to irrigate the lower valley about the Double-O but by the end of the period, the water had practically quit running into the upper end of the Warm Spring Unit. The Double-O Unit of the refuge was in excellent shape but will require rain to sustain itself and make a good forage crop. The snow pack on the Blitzen River was about the same as a year ago and by the end of the period, the Blitzen Valley was in better shape for water than a year ago at the same time but will require considerable precipitation to provide sufficient water to fill all ponds and irrigate the hay meadows. Water conditions generally in this part of the State are reported as being about 80% of normal and rains will be necessary to provide water for range and irrigation use throughout the summer. Suitable rains during May and June could make this an excellent forage year and lack of sufficient rains would undoubtedly result in drought conditions before the summer is over.

C. Fires.

One fire was had during the period in the upper reaches of the Blitzen Valley which resulted in the loss of 520 tons of stacked hay, 700 fence posts burned and 18 tons of cotton cake. This fire evidentally started from some brush burning activity which was done by refuge personnel during the middle of December.

II WILDLIFE

A. Migratory Birds.

1. Populations and Behavior.

Although the period has been extremely dry as it was last year, because of the rains during the preceding period and the high level of Malheur Lake at the beginning of 1954, customary numbers of waterfowl have been occupying the refuge during the spring migration.

Whistling swan. The very mild and open winter resulted in a very thin coverage of ice on Malheur Lake, so a few swans were able to remain at the refuge all winter. They were most abundant just after the middle of the period when about 6,000 were estimated to be using the refuge, over 4,000 being visible on the lake to the east of Cole Island Dike on several occasions. The very cool weather of April seemed to retard their departure, and about 400 still were present at the end of the period.

Trumpeter swan. No known attempt to nest was made by any of the trumpeters this spring. One more swan died in March leaving four in the present flock. Of these, two apparently are paired

while the other two are not. The pair was so active in the persecution of the unpaired swans in the enclosure, that when the latter escaped from the enclosure during an excessive lowering of the pond water level, they were allowed to remain outside the enclosure since they seemed to be faring well in the Double-O Ranch Unit ponds to the north of the headquarters among the sand dunes. Also, chances for ultimate nesting of the remaining pair inside the enclosure seemed enhances through the greater isolation thereby provided them.

Geese. The mild winter and early meadow growth favored good use of the refuge by all customary visitant species of geese this year. Perhaps the most noteworthy record was a huge flock of an estimated 130,000 lesser snow geese on Can Island bay on the north side of Malheur Lake recorded by Biologists Glahn and Erickson during an aerial waterfowl census on March 1 and 2. Strangely enough, no other snow geese were observed on other parts of the refuge at this time, probably because the cold nights were keeping a heavy film of ice over most of the refuge ponds and lakes and the single snow goose flock was keeping about 300 acres of water open by their activities. Their feeding at that time was restricted mainly to grain fields and meadows in the Burns and "Red-S" field vicinities. With warmer weather during the second week of March, this large flock soon dispersed to various meadows and water areas in the Harney Basin, though about 3,000 continued to occupy refuge meadows below headquarters until towards the end of April.

Despite the warm weather of late winter and early spring, Canada geese did not nest earlier than usual, a few nests being encountered during the last ten days of March. The first brood was seen on April 21. Judging by the fates of the few observed terminated nests, at least an average seasonal nesting success of about 65 to 75 percent might be expected.

Ducks. The pintail flight seemed especially strong this year and they remained in large numbers throughout the last two months of the period. Baldpates seemed few by comparison, and it seems likely that this species may use, in part, another migration route on their way northward. Canvas-backs and American mergansers were especially abundant among the early arrivals and mallards remained about the same in number, while gadwalls, cinnamon teal and ruddies were well represented among the later arrivals.

Sandhill crane. The migration pattern of the Sandhill crane was similar this year with that of 1953 except that an unusually large concentration of about 500 occupied flooded meadows southeast of the Harney County Fair Grounds near Burns in March and early in April.

American coot. The numbers of coots remained similar to

those of last year at Malheur Refuge, but no nests were found in April this year.

Shorebirds and waders. With the high water level on Malheur Lake, few shorebirds made use of the refuge compared with other years. Great blue herons (Treganza's) were nesting early in April and black-crowned night herons and American egrets began nesting shortly after the middle of April. Three large egret and heron rookeries were located on Malheur Lake, the largest being found just west of Cole Island Dike and about one mile north of the trappers' cabin.

Other waterfowl. Complete clutches of cormorant eggs were seen on muskrat house nest sites on April 16.

2. Food and Cover.

Despite the high water level and the extremely heavy population of muskrats that survived the successful trapping season, the emergent plant cover was in somewhat better condition at the end of the past winter than it was a year ago. Inasmuch as most of the muskrat houses were located in the shallower and more heavily vegetated periphery of Malheur Lake where they were afforded better protection from wind and waves in their role as substrates for Canada goose nests. The wading bird rookeries already have been established in the dense vegetation near the shores, and it is likely that until the muskrat population is substantially decreased and the bulrush in the deeper water has a chance to recover its dense stands, these birds will remain near the shore. The prospects for adequate aquatic food resources for the coming fall migration should be good in view of the present high water levels.

3. Botulism, lead-poisoning and other sickness.

No sickness among birds on Malheur Refuge was noted this period.

4. Banding.

No banding was undertaken at this station during this period.

B. Upland Game Birds.

1. Populations and Behavior.

Ring-necked pheasant. No pheasants were trapped for restocking purposes this year because of the mild winter and their failure to be concentrated in groups. They apparently wintered well and unless high water interferes, a good nesting season is in prospect.

Valley quail. During late winter Before the spring dispersal, 317 valley quail were trapped around headquarters and removed by personnel of the Oregon State Game Commission for planting

elsewhere in Oregon and for possible shipment to Montana. Very little mortality with quail was noted anywhere except near refuge headquarters where a couple of them flew into office and shop windows.

European partridge. A few partridges were seen in Big Sagebrush Field and in the Double-O Ranch Unit again this year, possibly indicating a minor comeback in a relatively unstable and sparse population.

Sage hen. With the open winter, few sage hens were seen around the refuge during the winter or spring. The downward trend in the population again was evident on the Frenchglen strutting grounds where they were only about half as numerous as in 1953, the fewest seen in the past eight or nine years.

C. Big Game Animals.

1. Populations and Behavior.

Antelope. No change from this period last year.

Mule deer. No losses of yearling fawns were noted this year and again the deer left the refuge for the higher flats where they remained throughout most of the winter.

D. Fur Animals, Predators, Rodents and other Mammals.

1. Populations and Behavior.

As during the previous trapping season, the mild winter prevented the formation of safe ice throughout the winter, so all trapping of muskrats was limited to shoreline trapping until the ice went out late in February.

Beaver. Ten beavers were trapped during the period, all of them being taken in the Blitzen Valley.

Muskrat. A total of 22,412 muskrats was trapped on refuge permits on Malheur Lake, exceeding by more than 5,500 the number that had been taken any other year since the refuge was established. The next nearest catch was in the season of 1949-50 when 16,825 were taken on Malheur Lake, plus 79 muskrats trapped in the Blitzen Valley for a total of 16,904 for the refuge. In addition to the 22,412 muskrats trapped under refuge permit, non-permittee trapping on private lands of Malheur Lake probably accounted for at least 5,000 other muskrats so that probably at least 27,000 muskrats were trapped on Malheur Lake during the past winter. This heavy catch was a response of the extreme abundance of muskrats and the extension of the regular muskrat season from February 15 to March 31 when success was much greater with open-water trapping. The limiting factor determining each trapper's take was not the number he could catch but the number of pelts that could be prepared during the time he was not on the

trapping line. The most industrious and fastest trapper could handle 125 pelts, while the slowest trappers could handle only about 75 muskrats daily over an extended period of time.

Although the outlook for a successful trapping season was very dark through December, seven reliable trappers were recruited for the harvest and they turned in a fine job. Most of them indicated that they probably will be back next fall if fur prices do not fall further and if the trapping prospects remain good. The muskrat population after the end of the season remained excessive, so barring a die-off, it is likely that the muskrat population on Malheur Lake should warrant the removal of at least 20,000 muskrats again during the next trapping season. It is also hoped that the state trapping regulations will be amended to permit the trapping of muskrats through March 31 each year without the necessity of obtaining a trapping season extension each year when it becomes necessary.

Mink. Less time was available for trapping minks this winter and fewer (17) were taken, with more of them in evidence at the end of the trapping season this year than have been for four years. However, they still are at a desirably low level and little mink activity is noted.

Raccoon. Despite continued fall and winter trapping, the raccoon remains the most important waterfowl predator in the Blitzen Valley. A total of nine raccoons was trapped this season by refuge personnel.

Skunk. Skunks remain about at the same level of abundance as last year, 23 of them being trapped during the past six months.

Coyote. Once the most important waterfowl predator on this refuge, coyotes now are rarely seen, only 3 having been taken during the period.

Bobcat. Like raccoons, bobcats are common and 23 of them were shot or trapped during the past four months, many of these in the Double-O Ranch Unit.

Porcupine. These rodents are slightly more abundant this year than they were last year, about a dozen being killed this past winter.

Other species. Rabbit numbers have shown no evidence of returning to their former abundance yet, and the usual mice damage occurred around the buildings and lawns.

E. Predaceous Birds, including Crows, Ravens, and Magpies.

Raven numbers have increased slightly, perhaps 20 percent over their 1953 numbers, and magpies have shown a similar increase.

F. Fish.

A load of legal-sized trout was planted in the Blitzen River near the P-Ranch on April 13 and another on April 28, totaling about 2,200 rainbows planted during the first four months this year.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Soil and Moisture Program.

Little work was accomplished during the period under the Soil and Moisture Program. Two checks were completed, one mile of new fence built, and one cement drop constructed. The latter was of considerable importance and is a fine structure with two five-foot openings.

2. Water Control Project.

The accomplishments under this project during the period are as follows: 9,833 cubic yards of diking completed; 258 cubic yards of riprap hauled and placed; four 18-inch pipes with headgates installed; five 24-inch pipes and one 30-inch pipe put in, all with headgates; 11 miles of lateral ditches cleaned; one mile of telephone line relocated and rebuilt away from water; 6,785 cubic yards of canal bank repaired; 3,120 cubic yards of nesting island work accomplished; 4,322 lineal yards of major canal cleaned; and 100 cubic yards of cement gravel stockpiled.

This project was of a diversified nature during the period and quite a large number of much needed repair and maintenance projects were completed. The majority of this work was accomplished in the Blitzen Valley, but some lateral work was done at the Double-O as well as some pipe installation.

3. Public Use Building.

During the period, the wiring of the building and display cases was completed; small items installed such as soap dispensers, towel racks, window shades, etc.; sand was hauled for the walks and walls, and some veneer wall was poured. The specimens were cleaned and reworked where necessary and materials ordered and received for shelving and display purposes.

4. Fence Construction.

One mile of fence was rebuilt new, a full mile razed and old materials and debris cleaned up, and three board gates constructed and hung during the period.

5. Two-car Garage.

The floor and ramp were poured on this project and some fill and general cleanup was provided about the exterior of this structure. Painting of the gable ends and cornice remains to be done to complete this project.

6. Oil and Paint House.

During the period, the necessary backfill was provided and cement blocks provided in front of the doors. The painting of the gable ends and cornice will complete this project.

7. Project 712-R Account.

Post cutting. A contract was let for the cutting of a minimum of 3,500 juniper fence posts under this account. By the end of the period, the actual cutting had just gotten under way but it was expected that the cutting would be done within a month.

Frost-proof storage building and light plant room. Some painting remains to be accomplished to complete this job. As soon as weather permits, a number of small paint jobs about the refuge headquarters will be undertaken.

Repair roads, bridges and revetments. Thirty-six hundred cubic yards of surfacing materials were hauled on various refuge roads. Most of this surfacing was provided on the Double-O road and one more season should see a surfaced road entirely into the Double-O buildings. This is a much-needed improvement as this country is subject to very rigorous road conditions during most of the winter and spring seasons.

Underground sprinkler system. No work was performed on this project.

Improve underground power line at Headquarters. The materials were purchased and received for this project. It isn't likely that any actual installation will be done until such time as it is determined if replacement light plants will be received during the next fiscal year.

Surplus dwellings transfer. The footing was dug and foundation poured for one dwelling which is ready to be lowered onto the new foundation. The water line was laid for both buildings.

8. Building Repairs and Improvement.

With the exception of minor repairs where required to existing buildings, all time available in the carpenter department was devoted to the completion of the museum building and rehabilitation of the Rome dwellings. Some shop work was accomplished in the way of cabinets etc.

9. Repairs to Equipment.

During the first three months of the period, the mechanic position was unfilled owing to a previous injury of Mechanic Sanderson. Mr. Sanderson returned to work as of April 1 with quite a backlog of mechanical work to perform.

The usual ordinary maintenance of automotive equipment was performed and a complete major overhaul of the Sheldon Refuge jeep pickup was accomplished. The TD-18A tractor required new brakes, recoil spring and main leaf in equalizer spring which was quite a repair project. During the period, the Dodge dump truck I-18621 required considerable work in new cab and motor supports, new brakes, and rear spring hangers.

B. Plantings.

1. Cultivated Crops.

Three hundred acres of barley and 120 acres of wheat were actually planted during the latter part of the period. Considerable ground was ready for planting and it is expected that the planting project will be entirely completed prior to the end of May. A considerable acreage of the farm land was irrigated before plowing and seeding which places it in excellent shape for the growing of a crop with just normal precipitation. For the first time, a sizeable planting was made at the Double-O.

IV ECONOMIC USE OF THE REFUGE

A. Grazing.

Mild weather continued throughout the entire period but as was the case of a year ago, spring was retarded and cattle remained on the refuge pastures until late. Utilization of pasture was much better than expected and generally all stock on refuge pasture was wintered in good flesh. Very little concentrated feeds were provided this winter which was perhaps a result of both the uncertain cattle prices and the excellent pasture conditions.

While at turn out time the foothill ranges and water holes were in much better condition than a year ago, by the end of April some ranges were hurting for the lack of moisture.

V FIELD INVESTIGATION AND APPLIED RESEARCH

A. Progress Report.

1. Studies in the Improvement of Waterfowl Nesting Habitat.

A brief description of a "pilot project" involving the construction of earthen islands towards increasing the nesting use of certain marshy habitat currently having low production records was presented in the preceding narrative report for September-December, 1953. Earth-moving work was completed on this project during the first week of February. Plantings of giant rye-grass, alkali rye-grass, smooth brome, ballast weeds, and nettles were made as planned and water was turned into the area on February 11 from Boca Lake.

On the following day, about one third of the pond bottom surface was covered with water and with a very strong wind stirring up waves, some deterioration of the peaty, ash-dry islands in the deeper water was noted. Since the deterioration continued with the prevailing strong winds, the pond level was lowered when boards were taken out of the outlet water control structure on February 16, and by the 18th, the level was down and the islands had absorbed enough water to resist wave action. Deterioration

was found to be most severe in the deepest water with the islands with considerable peat content and in the plots where the islands were more sparsely distributed since the wind sweep was less interrupted.

The observations of geese nesting on the islands were made on April 2. A pair of great horned owls also were nesting on a nearby island. By the end of April, at least eight islands held goose nests, as determined from observations made from nearby roads and dikes. Wishing to avoid observational disturbance as much as possible, no islands were visited up to April 30. An island-to-island check will be made by canoe after all nest histories are believed terminated, probably late in May or early in June, and information on the fates of the clutches will be recorded from available evidence. At this time, the cover will also be searched for nesting ducks. A more comprehensive report on the first year's production of this 100-acre study plot will be made in the May to August narrative report.

2. 16mm. Moving Picture Photography.

During the period, totals of 1,900 feet of 16mm. kodachrome movie film and 71 kodaslides were shipped to the Central Office and 68 kodaslides were retained in the Malheur Refuge file, representing the products of 16mm. and 35mm. photography at Malheur during 1953. During the first four months of 1954, about 1,500 feet of movie film was exposed on a variety of subjects, including several 50-foot reels on a concentration of about 130,000 snow geese. Unfortunately, a shipment of 24 50-foot magazines turned out to be defective, including the sequences on the snow geese, and the defective magazines were returned to the Eastman Kodak Company for which replacements were received.

Although plans had been made to obtain winter and spring sequences of antelope at Hart Mountain and Sheldon Refuges, the "unwintry" aspect of these ranges throughout most of the winter, together with the interruptions occasioned by the Ross's goose study in California and the movie camera's mechanical failure towards the end of the winter, completely nullified any attempt to accomplish this photographic assignment last winter. If additional antelope film footage is still desired on this aspect of their life history, another attempt to obtain these sequences could be made next fall, winter and spring with better chances of success.

3. Off-refuge Biological Assignments.

During the period, four days in January and four days in March were spent at the Tule Lake and Sacramento Valley refuges towards the completion of a study of the habits, distribution and hunting losses of the Ross's goose on its California wintering grounds. Some time was spent in April examining the stomachs of Ross's and snow geese and in commencing the preparation of a report on this study.

VI PUBLIC RELATIONS

A. General.

Owing to the adverse weather conditions when it should have been springlike, the usual number of recreational visitors was somewhat below average for the period. It is fully expected that this type of visitor will increase tremendously after the state angling season opens on May 1 and improved weather comes along.

On April 8-9, Professor Lee Kuhn of the Fish and Game Department of Oregon State College and a group of 14 upper classmen visited the refuge. This is an annual event in connection with a prolonged field trip over the various game areas of the state.

On April 14-15, a group of 12 from the Northwest Nazerine College led by Dr. Aller paid the refuge a visit.

B. Refuge Visitors.

Official visitors and those of special note during the period were as follows:

January

16 John McKalvy, Oregon State Police Officer, Burns, Oregon.
26-28 Roland J. Schaar, Regional Supervisor, Branch of Lands, Portland, Oregon.

February

2 Roland J. Schaar, Regional Supervisor, Branch of Lands, Portland, Oregon.
10 Messrs. Palmer and Sorseth, Malheur Forest Rangers, Burns, Ore.
16 E. C. Stoneman, Predator and Rodent Control, Burns, Oregon.
18 Thomas A. Lawhorne, Game Management Agent, Pendleton, Oregon.

March

2 Ray Glahn, Pilot-Biologist, Sacramento Refuge, Willows, Calif.
17-19 Messrs. Parkhurst & Smith, Fisheries Biologists, Portland, Ore.
24 John McKalvy, Oregon State Police Officer, Burns, Oregon.

April

6 Ray Glahn, Pilot-Biologist, Sacramento Refuge, Willows, Calif.
Ray Novotney, County Extension Agent, Burns, Oregon.
Gordan Stuart, Mammal Control Supervisor, Baker, Oregon.
27-29 Harold F. West, Civil Engineer, Portland, Oregon.
28-29 Lee R. Jacoby, Civil Engineer, Portland, Oregon.
Roland J. Schaar, Regional Supervisor, Branch of Lands, Portland, Oregon.

C. Refuge Participation.

During the period, Refuge Superintendent Scharff attended Harney County

Chamber of Commerce Director's meetings on January 5, January 20, February 2, March 31, and April 28.

The local Grazing Board meeting was attended by Superintendent Scharff during January 19-21.

A meeting of the Harney County Land Use Committee was attended by Superintendent Scharff on January 22.

On February 12, a meeting of the Harney County Chamber of Commerce Wildlife Committee was attended by Superintendent Scharff.

A meeting of the State Water Resources Committee was attended by Superintendent Scharff on February 18 in Burns. This meeting was well attended by irrigationists, wildlife representatives from various organizations, and business men. Some discussion of the Silvies Flood Control Program was had.

On March 31, the Water Forecast Meeting held in Burns for this part of Oregon was attended.

VII OTHER ITEMS

A. Items of Interest.

On January 5, the mid-winter waterfowl inventory was taken on the Malheur Refuge and immediate vicinity.

Refuge Biologist Ray C. Erickson spent the period of January 9-12 on the Sacramento Refuge in connection with the Ross's goose study being conducted.

On February 22, Biologist Ray C. Erickson, Trapping Inspector Meservey and Oregon State Police officer John McKelvey apprehended two trappers without proper licenses and on refuge land. On February 24, the two defendants appeared in Justice Court and were fined $24.50 and $19.50, respectively.

On February 28, Ray C. Erickson showed "Behind the Flyway" to about 30 members of Hope Lutheran Church in Hines, Oregon.

On March 13, Ray Erickson showed Malheur Refuge movies to 50 members and guests of the American Legion and American Legion Auxiliary in Burns.

During the period of March 15-26, Mrs. Charles Hansen of Corvallis, Oregon, was employed to recondition the Benson bird collection for display in the museum.

Ray Erickson spent the period of March 27-31 in Corvallis and Portland receiving bird mounts and discussing preparation of the refuge bird list with Dr. Stanley G. Jewett. At this time, other Regional Office business was transacted.

The annual snow survey trip was made on March 24. This trip was made in the over-snow vehicle which was furnished by the Soil Conservation Service in their snow survey program.

Two new Chevrolet pickups were received during the period as was a new metal-turning lathe. This equipment was a valuable addition of equipment now on the refuge. Two old International pickups were sold as was a D-4 tractor.

On April 12, Oregon State Game Commissioner Gildersleeve of Baker, Oregon, visited the refuge with Messrs. Burgess, Osborne, and Hudson. They were returning from a show-me trip which was sponsored by the State Game Department on the Silver Lake winter deer range.

Some of the first observations of small birds northward bound are as follows: January 18, meadowlarks; February 24, Says phoebe; March 3, Spotted towhee and Cedar waxwings; March 18, Turkey vultures; April 6, Violet-green and Tree swallows; April 10, Rough-wing swallows; April 14, Barn swallow; April 15, House finch; April 17, Lewis's woodpecker; and Western King Bird on April 22.

An unusual observation was an Old Squaw female on January 28.

The first Oregon ground squirrel was observed on February 27.

On March 7, a Brown Thrasher was collected in a quail trap at refuge headquarters. This was a new and unusual record.

B. Photographs.

C. Signature.

May 25, 1954
Report completed

J. C. Scharff
Superintendent

Approved Regional Office

Fig. 1. The Dredger Field Experimental Area. Boca Lake to right (east) of artificial island impoundment.

Fig. 2. Artificial island impoundment looking westward; Boca Lake in foreground.

Figs. 3, 4. Bulldozing islands in cat-tail marsh.

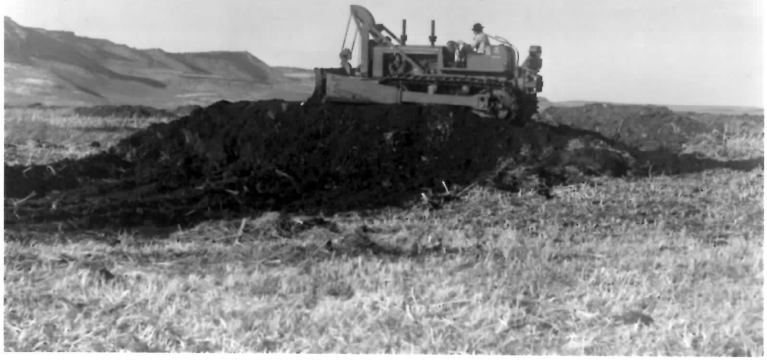

Fig. 5. The crown of each island was flattened by back-blading.

Fig. 6. First brood known to have hatched on newly constructed islands on May 5, 1954.

Fig. 7. A portion of Malheur Lake North of Narrows showing muskrat houses in bur-reed. Over 300 houses are visible in this photograph.

Fig. 8. Snow goose concentration on northeast side of Malheur Lake in Cane Island Bay.

Fig. 9. About 970 acres of hayland and 520 tons of stacked hay in Unit 2 to the north of Frenchglen burned on February 23, 1954.

Fig. 10. Interference with efficient operation of our telephone system may even be involved in connection with house-hunting by red-shafted flickers.

Fig. 11. Close-up of hind foot of mule deer entangled between two top strands of refuge fence.

Fig. 12. Concrete work on walks and planter around new museum building.

Figs. 13, 14. One of two Rome dwellings being set on foundation and outfitted for occupancy.